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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,754	10/20/2003	Masaaki Kusumi	KOIKE-01100	6013

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EXAMINER

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,754

Applicant(s)

KUSUMI ET AL.

Examiner

Kevin M. Bernatz

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/2/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 - 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "hard" in claims 1 and 7 is a relative term that renders the claims indefinite. The term "hard" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For purposes of evaluating the prior art, any material which is not explicitly taught as a liquid is deemed to be "hard", since it can be formed as a solid material.

The term "a large force of bonding to carbon" in claims 4 and 10 is a relative term that renders the claims indefinite. The term "a large force of bonding to carbon" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For purposes of evaluating the prior art, any material meeting the elemental limitations set forth in claims 4 and 10 are deemed to meet the claimed "a large force of bonding to carbon" limitations.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokai et al. (U.S. Patent No. 4,755,426) in view of Gunsel et al. (U.S. Patent App. No. 2002/0114980 A1).

Regarding claim 1, Kokai et al. disclose a protective layer for a magnetic recording medium comprising an inorganic film (*col. 5, lines 59 – 64*) formed on the magnetic element, an organic film (*col. 3, lines 23 – 46*) formed on the inorganic film, and a hard membrane formed on the organic film (*col. 3, lines 13 – 22 and col. 5, lines 49 – 58*).

Kokai et al. fail to disclose using the protective layer in a magnetic head meeting applicants' claimed limitations.

However, Gunsel et al. teach that using a protective layer over a magnetism-sensitive element in a magnetic sensor meeting applicants' claimed structural limitations is known in the art.

Given that Kokai et al. teach that the disclosed protective layer possesses improved traveling properties and abrasion resistance, it would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Kokai et al. to use the disclosed protective layer over both the recording

medium and the magnetic sensor meeting applicants' claimed limitations as taught by Gonsel et al., since the benefits of the protective layer would be equally desired in both applications.

Regarding claim 2, Kokai et al. disclose using DLC as the hard membrane (*col. 5, lines 49 – 58*).

Regarding claims 3 - 6, Kokai et al. disclose forming the organic film such that there is a continuous gradient in the thickness direction, hence producing a series of "layers" having unique properties, especially a surface layer meeting the claimed material limitations of the intermediate layer in claims 4 and 5 (*col. 3, line 36 bridging col. 5, line 48*). The Examiner has given the term "boundary" the broadest reasonable interpretation(s) consistent with the written description in applicants' specification as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, the Examiner notes that the boundary can be along any of the film directions, including the film thickness direction. Also "the components vary continuously" is met by any material in which there is at least 2 elements, since even a structure of ABABABABAB is a material with "components [that] vary continuously".

5. Claims 7 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokai et al. in view of Gonsel et al. as applied above, and further in view of applicants' admissions.

Kokai et al. and Gonsel et al. are relied upon as described above.

Regarding claim 7, none of above disclose a "position detector comprising a magnetic scale with position signals longitudinally provided thereon" meeting applicants' claimed nominal position detector limitations.

However, applicants' admit that magnetic sensors are known to be used in position sensors meeting applicants' claimed limitations as an obvious use for a magnetic sensor (*specification, pages 1 – 6*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Kokai et al. in view of Gonsel et al. to apply to a magnetic sensor utilized in a position detector meeting applicants' claimed limitations, since applicants' admit that it is not novel to use a magnetic sensor in a position detector meeting applicants' claimed nominal position detector limitations.

Regarding claims 8 – 12, Kokai et al. in view of Gonsel et al. disclose the claimed limitations as recited above with regard to claims 2 – 6.

Conclusion


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chen (U.S. Patent No. 6,517,956 B1) teach protective coatings comprising AlN/C-containing/solid lube/liquid lube (*entire disclosure*). Hwang et al. (U.S. Patent No. 5,948,532) teach protective layers comprising inorganic/carbon wear layer (*entire disclosure*). Hayashi (U.S. Patent No. 5,849,422) teach a magnetic head with a dual layered protective layer (*col. 3, lines 1 – 42 and Tables 12 and 13*), but fails to disclose using an organic coating layer therein. Usuki et al. (U.S. Patent App. No. 2003/0076611 A1) teach a protective layer comprising AlN/DLC/organic rust preventative/liquid lubricant, wherein the DLC coating is explicitly taught as a solid lubricant type material (*entire disclosure*). The Examiner notes that a 103-type rejection could have been made in view of Chen, presuming the C-containing layer in Chen is an "organic film", but the Examiner deems that the present rejections of record represent the closest prior art.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB
August 29, 2005


Kevin M. Bernatz, PhD
Primary Examiner